

## REMARKS

Claims 35-42 and 44-55, all the claims presently pending in the application, are rejected on prior art basis.

Applicant notes that numerous teleconferences have been held with Examiner Nilesh Shaw, the former Examiner handling this application, the below-listed counsel, and the inventor including on March 27, 2006, November 22, 2005, and during June, 2006 in order to discuss the prior art and modify claim language to satisfy Mr. Shah. During the last teleconference, subject matter for the claims was agreed upon that would satisfy Mr. Shah and overcome the prior art. Mr. Shah would then review the amended claim language again in the amendment that was filed in March 30, 2006 and call counsel to determine if the language was acceptable. Counsel did not hear back from Mr. Shah and learned yesterday that Examiner Shah has left the PTO. After speaking yesterday with newly assigned Examiner Ms. To, counsel learned that Mr. Shah failed to note any of the interviews that had occurred or that the claim subject matter and language was close to being satisfactory to Mr. Shah. In conclusion, counsel and applicant assert that based on the prior work performed with Mr. Shah and that an RCE was previously filed in order to modify claim language to satisfy Mr. Shah, that citing new art and changing the rejection status to Final at this time is unfair and prejudicial to applicant. Applicant respectfully requests that either the pending claim amendments be entered and/or that the final status be removed.

It is noted that any claim amendments are made to merely clarify the language of

each claim, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claims 35-54 stand rejected under 35 USC 103(a) as being unpatentable over US Patent 6,987,729 to Gopalakrishnan ("Ref. 1") in view of US Patent No. 6,385,638 to Baker-Harvey ("Ref. 2"). The rejections are respectfully traversed in view of the following discussion.

## **THE PRIOR ART REJECTION**

Ref. 1 (Gopalakrishnan) is a patent describing management of a wireless cellular telephone or data network that determines whether a new user may be admitted onto the network based on a current system loading of users and their data and radio resource utilization of the wireless system (Ref. 1: Col. 1, L. 20-23; Col. 3, L. 5-15). Regarding claim 1, the Examiner alleged that the abstract and col. 9, line 51-col. 10, line 5 discloses "a method of managing digital signal processing in a single processor when inadequate processing resources are available in the processor to execute functions of a software process in a time period," as recited from the preamble to claim 1. However, this respectfully an incorrect understanding of the technology of the claimed invention, which clearly states that it is a method for managing digital

processing of software functions within a digital processor. Ref. 1 is a disclosure for a large cellular wireless system that has base stations (col. 6, L. 10), that are the large cellular transmission towers and associated antennas and receivers, and people using cellular telephone or modems to transmit and receive signals from the cellular towers (col. 1, L. 27-65; col. 2, L. 30-35). Column 9 of Ref. 1 states

“The method of the invention may be implemented in a “processor” that is capable of configuring the communication channel and is linked with memory...the processor will monitor the communication channel, interact with user applications, and carry out the data gathering and processing tasks...”

The processor in Ref. 1 is merely calculating the “radio resource utilization for the wireless system” (col. 3, L. 7-8) to “redistribute a selected portion of the transmission resource differential...among served users” (col. 4, L. 4-8) resulting in a “bonus allocation” (col. 7, L. 50) to existing users on the system and allowing or denying a new user into the system depending on whether the bonus allocations can be given to the new user (col. 9, L. 10-20). Obviously the processor is merely calculating the radio resources like bandwidth and channel allocations for external usage by subscribers to the wireless system.

The wireless network of Ref. 1 is not located “in the processor” of Column 9. That wireless network covers a large geographic area having base stations and users connecting to the base stations with cell phones and data modems. Ref. 1 is in stark contrast the claimed invention of managing processing resources “when inadequate

processing resources are available *in the processor* to execute functions of a software process in a time period.” Ref. 1 fails to teach or suggest managing any of the processing resources of the processor referenced in column 9 and further fails to teach or suggest that the referenced processor is overloaded with software functions to execute. Ref. 1 is external management of users on channels of a cellular telephone and data network, claim 1 is management of software algorithms running on a single processor when there are inadequate resources in the processor to process the algorithms. This is simply different technology between the present invention and Ref. 1's network.

The prior rejections during this prosecution also made the same mistake of comparing the present method to managing applications external to a processor. Applicant has stated consistently that these aspects are diametrically opposite the disclosure, claims, and result of the claimed invention. In the claimed invention, only one processor is used to handle the processing load, where the load is divisible into manageable software functions according to different criteria. Handling users, radio channels, bandwidth on a wireless network of Ref. 1 are all occurring through towers, base stations, and network lines external to a computer processor. The claimed invention uses no external processors or external networks and users, and does not manage entirely fixed loads. Therefore, the present invention is a novel technique of processing resources that allows a single processor to handle loads that would otherwise be handled by multiple processors or would otherwise simply be denied execution by the prior art processing methods.

The Examiner further alleged that Fig. 3, col. 4, lines 31-67 and column 5, lines 1-4 disclose “providing a plurality of functions of an adaptive algorithm in the software process that use the processing resources of the processor, wherein an execution of each function is manageable.” However, this is respectfully incorrect because these references to Ref. 1 are describing the management of user applications, such as data throughput, transmission power for channels, and frame error rates on the wireless network based on characteristic curves and data tables. These are all applications of the network occurring external to the processor, which is computing the most efficient settings for the applications. Further, it is unclear as to whether the Examiner intends the analogy of Ref. 1 to be the network applications themselves or to the calculations of data rates and transmission power for the applications. If the latter, Ref. 1 fails to teach or indicate any of the software calculations in the Ref. are “functions of an adaptive algorithm” or that the “execution of each function is manageable” according to the claim language. Ref. 1 generally states that calculations for user applications on the network are performed on a processor, which occurs in every modern cellular network but which fails to teach the claimed invention. The present invention uses “a single processor” that processes “manageable functions” in the processor as recited in claim 1. This is a fundamental flaw with Ref. 1 since the applications managed by the network system in Ref. 1 are all existing external the processor of column 9.

The Examiner further cited to Ref. 1 to teach “allocating the processing resources among each function based on an estimated use of the processing resources by each function so as not to exceed the processing resources available in

the processor in a time period. Here, the Examiner cited to "the determination of an initial optimum resource allocation for each user application" in col. 2, and "an FER and a data rate are selected to optimize system power allocation in respect to the data throughput requirement for the application and ...the channel" in col. 3. This is respectfully an incorrect analogy to the claimed invention because, as described above, the Ref. 1's applications are all external to the processor controlling the data rates and power allocation and further no teaching or suggestion that the processor is overloaded with processing functions is made in Ref. 1. The Examiner is comparing a single processor with operations across an entire wireless network which are different technologies.

The Examiner admits that Ref. 1 did not teach "controlling of the execution of each function according to the allocation of the processing resources," and cites to the abstract and col. 32, lines 30-436 of Ref. 2 (Baker-Harvey). However, Ref. 2 fails to make up for the deficiencies of Ref. 1. First, there is no suggestion that Ref. 2 would have been combined with Ref. 1 to produce the claimed invention. Ref. 1's computerized management of a wireless network fails to describe a suggestion or need of any particular management of digital processing on a processor controlling the network. Likewise, Ref. 2 fails to suggest any reasons that it should or even could be combined with a disclosure for a cellular wireless network. There is no suggestion nor teaching that Ref. 2's time allocation of fixed processing tasks would improve or is even desirable in the network of Ref. 1. A suggestion of combination, if even possible, would merely be hindsight.

Ref. 2 describes a method for an API of a plurality of applications, where each application has two or more functions requiring execution on the processor. A processor resource distributor selects one of the functions based upon "the time available on the processor." The processor determines a schedule for allocating processor time to each of the applications (col. 3, L. 30-45). However, this fails to teach or suggest "controlling the execution of each function according to the allocation of the processing resources" primarily because the types of functions controlled by Ref. 2 and the present invention are different. Ref. 1 distinguishes itself from the present claims in column 2, lines 38-41:

We do not attempt to recompute the schedule or attempt to make policy decisions about admittance when the system is in overload, or when a deadline is about to be missed.

And further in col. 3, lines 5-10:

If a task requires processing but the time is unavailable on the processor...the new task is excluded.

Claim 1 is a method where there are functions that all need execution but there are "inadequate processing resources are available in the processor to execute functions of a software process in a time period." This method is for a processor in overload, yet executes all of the functions because the algorithm is an "adaptive algorithm." Thus, the claimed invention is not for a fixed load, where Ref. 2 only executes fixed loads.

Thus, even if combined, the combined references would not teach or suggest the

claimed invention.

In regard to claim 36, contrary to the Examiner's allegations, Ref. 2 uses no extra-environmental conditions to determine function execution. Ref. 2 merely calculates the processing time needed and whether the function itself is labeled high or low priority. No external factors, such as echo return loss or algorithm convergence, is used to determine time slots for processing in Ref. 1

In regard to claims 37 and 38, Ref. 1 uses a time slot schedule shown in Figure 2, but this is neither a hierarchical nor a round robin scheme for execution.

In regard to claims 39-40, and 42, Ref. 2 specifically disclaims using any performance-degrading execution scheme or removing the processing requirements of the tasks that would cause the performance degradation: "The problem with this approach is that none of our tasks will "gracefully degrade" if their utilizations are changed slightly." (col. 2, L. 25-28. Thus, Ref. 2 itself states that it does not use the claimed method.

Regarding claim 41, since Ref. 2 has no feature or suggestion for performance-degrading execution of a function of an adaptive algorithm on a single processor as described above, it cannot teach or suggest "re-allocating more of the processing resources to each performance-degraded function when a cumulative usage of said processing resources by the functions fall below said low usage threshold."

Regarding claims 47-55, the arguments above are incorporated as applicant's response.

The Examiner is correct that claim 38 should be dependent upon claim 35. This



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was a typographical error and corrected above.

## CONCLUSION

Counsel and Examiner To agreed yesterday for the Examiner to call counsel upon receipt up this response. Mr. Sheets may be contacted at (301) 601-5010.

The Commissioner is hereby authorized to charge any fees associated with this communication to Client's Deposit Account No. 20-0668.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on Sept. 7, 2006.

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Kendal M. Sheets      Date